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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/796,376	03/09/2004	Francis M. Houlihan	2004US305	1909

7590 10/03/2005
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EXAMINER

WALKE, AMANDA C

ART UNIT	PAPER NUMBER
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1752

DATE MAILED: 10/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/796,376

Applicant(s)

HOULIHAN ET AL.

Examiner

Amanda C. Walke

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 11 and 12 recite the limitation "where R" and "where ZH" respectively. There is insufficient antecedent basis for this limitation in the claim.

These claims are dependent upon the instant claim 8, however, claim 8 has no structure having a position R or ZH, claim 10 does.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 2, 4, and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Chang et al (2005/0123863).

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Chang et al disclose an immersion lithography process comprising immersion exposing a material that has at least a resist layer and a protective layer coated onto a substrate, then developing the coatings. Given the teachings of the reference, the instant claims are anticipated.

6. Claims 24-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Brunsvold et al (6,057,080).

Brunsvold et al disclose a top ARC layer (protective layer) that is coated over a layer of UV sensitive photoresist. This layer comprises a fluorocarbon polymer such as a fluorocarbon carboxylate or sulfonate of hydroxyl functional polymers. The use of such a topcoat improves the pattern resolution. The method taught by the reference appears to meet the claim limitations. Therefore, the instant claims 24-31 are anticipated by the reference.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 3, 5-7, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al in view of Yeo et al (2005/0036183).

Chang et al has been discussed above and while it discloses that there is an immersion fluid, a developing liquid, and any type of exposure may be employed, the reference is silent with respect to the specifics.

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Yeo et al disclose an immersion fluid for immersion lithography. The liquid employed is water, which is taught to be conventional. Also, the reference teaches that immersion lithography is conventionally employed using a wavelength of less than 450nm, preferably 193, or 157 nm. The reference teaches that it is conventional to employ TMAH as the developing liquid.

Given the teachings of the references, it would have been obvious to one of ordinary skill in the art to prepare the material of Chang et al by the method of Chang et al, choosing to employ water as the immersion fluid, a laser of wavelength of less than 450nm, and TMAH as the developing fluid, with reasonable expectation of achieving a pattern free of contamination.

9. Claims 8 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al in view of Brunsvold et al (6,057,080).

Chang et al has been discussed above, but fails to teach the specifics about the resist and protective layer.

Brunsvold et al disclose a top ARC layer (protective layer) that is coated over a layer of UV sensitive photoresist. This layer comprises a fluorocarbon polymer such as a fluorocarbon carboxylate or sulfonate of hydroxyl functional polymers. The use of such a topcoat improves the pattern resolution.

Given the teachings of the references, it would have been obvious to one of ordinary skill in the art to prepare the material of Chang et al choosing to employ the topcoat of Brunsvold et al with reasonable expectation of achieving a pattern free of contamination.

10. Claims 9-15 and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al in view of Brunsvold et al and any one of Feiring et al (6,875,555), Tran et al (article

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from Macromolecules), or Hung et al (article from Advances in Resist Technology and Processing).

Chang et al has been discussed above, but fails to teach the specifics about the resist and protective layer.

Brunsvold et al has been discussed above, and teaches that fluorocarbon polymers are employed in the TAR layer, but doesn't limit to specific polymers.

Feiring et al, Hung et al, and Tran et al, disclose fluorocarbon polymers for use in resist or ARC coatings in UV lithography. All three references teach the polymer claimed by the instant claims as a preferred polymer.

Therefore, given the teachings of the references, it would have been obvious to one of ordinary skill in the art to prepare the material of Chang et al in view of Brunsvold et al choosing to employ the fluorocarbon polymer of Feiring et al, Tran et al, or Hung et al with reasonable expectation of achieving a pattern free of contamination.

Double Patenting

11. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

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12. Claims 1-23 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-23 of copending Application No. 10/875596. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lin et al (6,788,477), French et al (2004/0009425), and Switkes et al (2002/0163629) are cited for their teachings of similar materials and methods.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amanda C. Walke whose telephone number is 571-272-1337. The examiner can normally be reached on M-R 5:30-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Amanda C Walke

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ACW
September 29, 2005